BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XC018

Takes of Marine Mammals Incidental to Specified Activities; Pile Driving for Honolulu Seawater Air Conditioning Project

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; proposed incidental harassment authorization; request for comments.

SUMMARY: NMFS has received a complete and adequate application from Honolulu Seawater Air Conditioning, LLC (HSWAC) for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment, incidental to pile driving offshore Honolulu, Hawaii. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is proposing to issue an IHA to incidentally harass, by Level B harassment, 17 species of marine mammals during the specified activity within a specific geographic region and is requesting comments on its proposal.

DATES: Comments and information must be received no later than [insert date 30 days after date of publication in the FEDERAL REGISTER].

ADDRESSES: Comments on the application and this proposal should be addressed to Michael Payne, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The mailbox address for providing email comments is ITP.Magliocca@noaa.gov. NMFS is not responsible

for e-mail comments sent to addresses other than the one provided here. Comments sent via e-mail, including all attachments, must not exceed a 10-megabyte file size.

Instructions: All comments received are a part of the public record and will generally be posted to http://www.nmfs.noaa.gov/pr/permits/incidental.htm without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

A copy of the application containing a list of the references used in this document may be obtained by writing to the address specified above, telephoning the contact listed below (see FOR FURTHER INFORMATION CONTACT), or visiting the internet at: http://www.nmfs.noaa.gov/pr/permits/incidental.htm. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Michelle Magliocca, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 et seq.) direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of small numbers of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specific geographical region if certain findings are made and either regulations are issued or, if the taking is limited to harassment, a notice of a proposed authorization is provided to the public for review.

Authorization for incidental takings shall be granted if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) further established a 45-day time limit for NMFS' review of an application, followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Summary of Request

On April 16, 2012, NMFS received an application from HSWAC requesting an IHA for the take, by Level B harassment, of small numbers of 17 marine mammal species incidental to pile driving activities offshore Honolulu, Hawaii. Upon receipt of additional information and a revised application, NMFS determined the application complete and adequate on April 27, 2012. HSWAC plans to install piles during construction of a seawater air conditioning project. Once constructed, an offshore pipe would pump cold, deep seawater to a pump station onshore. Pile driving operations would include installation of test piles, installation of sheet piles for construction of a temporary receiving pit, and installation of pipe piles to help support the intake and discharge pipes. Because elevated sound levels from pile driving have the potential to result in marine mammal harassment, NMFS is proposing to issue an IHA for take incidental to pile driving activities.

Description of the Specified Activity

The purpose of HSWAC's project is to construct a district cooling system for commercial and residential properties in Honolulu. In summary, the system would consist of a seawater intake pipe extending about 7.6 kilometers (km) offshore, a seawater discharge pipe extending about 1.6 km offshore, a land-based pump station, and a land-based chilled water distribution system. HSWAC proposes to drive steel sheet piles and cylindrical steel piles as part of the construction. The piles would be used to construct a temporary "receiving pit," implement a test pile program, and stabilize concrete collars supporting the intake and discharge pipes. Only pile driving activities are expected to result in incidental harassment of marine mammals and will be the focus of this notice. The depth and water flow velocity of the 1.6-meter (m) seawater intake pipe would be such that entrapment of a marine mammal is considered discountable. HSWAC

considered placing a screen across the intake pipe (acting as an excluder device), but NMFS Pacific Islands Region and NFMS Pacific Islands Fisheries Science Center determined that such a device may actually increase the water flow velocity, and therefore, the potential for impingement. A summary of the pile driving activities are provided in Table 1 below. Further details regarding installation of the pipelines are provided in HSWAC's IHA application here: http://www.nmfs.noaa.gov/pr/permits/incidental.htm.

HSWAC would begin offshore work by installing 10-12 51-cm diameter steel pipe piles using a hydraulic impact hammer (Junttan Model HHK9 or similar). These "test piles" would be located along the pipe alignment from the receiving pit to a depth of about 46 m. The distance from the piles to shore would vary from about 488 m to 1,128 m. Each test pile should take about 15 minutes to drive and pile driving would be complete in 1-2 weeks with about one pile installed per day. Each test pile would be removed by cable pull immediately after installation and resistance testing.

After installation of the test piles, HSWAC would prepare a 12-m by 12-m by 6-m deep receiving pit to remove a micro-tunnel boring machine from the nearshore micro-tunnel. The receiving pit would be about 488 m offshore in about 9 m of water. HSWAC would use a barge-mounted vibratory pile driver (J&M Model 44-50 or similar) to install 80 61-centimeter (cm) steel sheet piles around the perimeter of the receiving pit. Pile installation is expected to take 10 hours of driving per day for about 16 days. After sheet piles are installed, the pit would be excavated.

Next, HSWAC would drive 113 51-cm diameter steel pipe piles, or "production" piles. HSWAC would use the same type of hydraulic impact hammer to install piles through concrete

collars that hold the intake and discharge pipes in place on the seafloor. Fifty-two concrete collars would have two piles each and nine more collars would have a single pile. Each pile would take about 15 minutes to drive and HSWAC estimates that three or four piles would be installed per day. Installation of the 113 steel pipe piles should take about 4-6 weeks.

Table 1. Summary of pile driving activities to occur during construction of the seawater air conditioning system.

Activity	**51-cm Test Pipe Piles**	**61-cm Sheet Piles**	**51-cm Production Pipe Piles**
Location	488-1,128 m offshore	488 m offshore	488-1,128 m offshore
Number of piles	10-12	80	113
Pile driving duration	1-2 weeks	16 days	4-6 weeks
Dates of activity	October 2012	November 2012 or April 2013	March/April 2013
Hammer type	Impact	Vibratory	Impact

Date and Duration of Proposed Activity

HSWAC plans to begin pile driving in October 2012. The test piles would be driven in 1-2 weeks in October 2012. Sheet pile installation would last for about 16 days either in November 2012 or April 2013 in order to avoid the peak humpback whale season. The production piles would be installed out to about 46 m depth once the intake and discharge pipes are deployed. If construction proceeds quickly enough, the production piles would be installed around March/April 2013. If production piles cannot be installed during the 1-year IHA period, HSWAC would apply for another IHA and install the production piles sometime after September 2013. NMFS would issue the IHA for a 1-year period to allow for construction and weather delays. Pile driving would only occur in weather that provides adequate visibility for marine mammal monitoring activities.

Region of Proposed Activity

The proposed area for installation of the HSWAC intake and discharge pipes lies between Diamond Head and the Reef Runway of the Honolulu International Airport and is just offshore from the entrances of Honolulu Harbor and Kewalo Basin. Honolulu Harbor has historically been, and continues to be, an industrial area. Honolulu Harbor is the largest and most important of Oahu's three commercial harbors as the state's port-of-entry for nearly all imported goods. Kewalo Basin, Oahu's smallest commercial harbor, was constructed in the 1920s to ease the congestion in Honolulu Harbor and provide docking for lumber schooners. Over the years, the surrounding waters have been repeatedly polluted by wastewater treatment plant outfalls, sewage pumps, and stream discharges. The basin is now also used by tour boats, commercial fishing vessels, and charter fishing boats. Recreational activities in the area include fishing, swimming, surfing, snorkeling, diving, and paddling. However, fishery resources in the proposed project area are considered depleted as a result of habitat degradation and overfishing. An underwater survey was performed around the area proposed for pipeline installation. The seafloor slopes with varying degrees and consists mostly of medium to coarse sands and coral rubble.

Sound Propagation

For background, sound is a mechanical disturbance consisting of minute vibrations that travel through a medium, such as air or water, and is generally characterized by several variables. Frequency describes the sound's pitch and is measured in hertz (Hz) or kilohertz (kHz), while sound level describes the sound's loudness and is measured in decibels (dB). Sound level increases or decreases exponentially with each dB of change. For example, 10 dB yields a sound level 10 times more intense than 1 dB, while a 20 dB level equates to 100 times more intense,

and a 30 dB level is 1,000 times more intense. Sound levels are compared to a reference sound pressure (micro-Pascal) to identify the medium. For air and water, these reference pressures are "re: 20 μPa" and "re: 1 μPa," respectively. Root mean square (RMS) is the quadratic mean sound pressure over the duration of an impulse. RMS is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average (Urick, 1975). RMS accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels (Hastings and Popper, 2005). This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues, may be better expressed through averaged units rather than by peak pressures.

Source levels for the vibratory and impact hammer are expected to be 175 dB and 205 dB, respectively. These source levels are based on near-source, unattenuated sound pressures from the California Department of Transportation's Compendium of Pile Driving Sound. Assuming a practical spreading loss of 15 log R, HSWAC estimated distances from the sound source to sound thresholds at which point NMFS considers marine mammals to be harassed (CALTRANS, 2007). The distances to each threshold for each pile driving activity are summarized in Table 2 below.

Table 2. Distances to NMFS' harassment thresholds for each proposed pile driving activity.

Harassment Threshold	**51-cm Test Pipe Piles**	**61-cm Sheet Piles**	**51-cm Production Pipe Piles**
Level A – 180 dB	47 m	n/a	47 m
Level B – 160 dB (impulsive sound)	1,000 m	n/a	1,000 m
Level B – 120 dB (continuous sound)	n/a	4,700 m	n/a

Description of Marine Mammals in the Area of the Specified Activity

There are 24 marine mammal species with possible or known occurrence around the Main Hawaiian Islands (Table 3). However, not all of these species occur within HSWAC's proposed project area or during the same time as proposed pile driving activities.

Table 3. Marine mammal species around Hawaii.

Species	Abundance in Hawaii	Season	ESA Status
Blainville's beaked whale (Mesoplodon densirostris)	2,872	Year round	-
Blue whale (Balaenoptera musculus)	n/a	Winter/Summer	Endangered
Bryde's whale (Balaenoptera edeni)	469	Year round	-
Cuvier's beaked whale (Ziphius cavirostris)	15,242	Year round	-
Dwarf sperm whale (Kogia sima)	17,519	n/a	-
False killer whale (Pseudorca crassidens)	484	Year round	Proposed
Humpback whale (Megaptera novaeangliae)	10,103	Winter	Endangered
Killer whale (Orcinus orca)	349	n/a	-
Longman's beaked whale (Indopacetus pacificus)	1,007	n/a	-
Melon-headed whale (Peponocephala electra)	2,950	n/a	-
Minke whale (Balaenoptera acutorostrata)	n/a	Winter	-
Pilot whale, short finned (Globicephala macrorhynchus)	8,846	Year round	-
Pygmy killer whale (Feresa attenuate)	956	Year round	-
Pygmy sperm whale (Kogia breviceps)	7,138	n/a	-
Sei whale (Balaenoptera borealis)	77	Year round	Endangered

Sperm whale (Physeter macrocephalus)	6,919	Year round	Endangered
Bottlenose dolphin (Tursiops truncatus)	3,178	Year round	-
Fraser's dolphin (Lagenodelphis hosei)	10,226	Year round	-
Risso's dolphin (Grampus griseus)	2,372	Year round	-
Rough-toothed dolphin (Steno bredanensis)	8,709	Year round	-
Spinner dolphin (Stenella longirostris)	3,351	Year round	-
Pantropical spotted dolphin (Stenella attenuata)	8,978	Year round	-
Striped dolphin (Stenella coeruleoalba)	13,148	Year round	-
Monk seal (Monachus schauinslandi)	1,161	Year round	Endangered

Blue whales and killer whales are considered rare around Hawaii and would be highly unlikely to occur within HSWAC's proposed project area. Sei whales, sperm whales, and striped dolphins are all found in deeper, offshore waters and are highly unlikely to occur within HSWAC's proposed project due to habitat preference. Therefore, these five marine mammal species will not be further considered. The remaining 19 species are discussed in further detail below.

Blainville's Beaked Whale

Blainville's beaked whales occur in tropical and temperate waters worldwide. They typically prefer deep, offshore waters of the continental shelf and are often associated with bathymetric structures such as seamounts or submarine canyons. Blainville's beaked whales are often observed individually or in pods of three to seven animals. For management purposes, this

species is divided into three U.S. stocks: the Hawaiian stock, the Northern Gulf of Mexico stock, and the Western North Atlantic stock. The Hawaiian stock includes animals found both within the Hawaiian Islands Exclusive Economic Zone (EEZ) and in surrounding international waters; however most abundance and distribution data comes from within the EEZ. The best available abundance estimate for the Hawaiian stock is 2,872 animals, but there is insufficient data to determine the population trend. Blainville's beaked whales are not listed under the Endangered Species Act (ESA) nor depleted under the MMPA.

Bryde's Whale

Bryde's whales prefer highly productive tropical, subtropical, and warm temperate waters around the world. They are typically found in deep, offshore waters, but may occur near the coast and continental shelf. This species is usually seen individually or in pairs, but loose aggregations may form around feeding areas. Bryde's whales within the Pacific U.S. EEZ are divided into two groups for stock assessment purposes: the Hawaiian stock and the eastern Pacific stock. The Hawaiian stock includes animals found both within the Hawaiian Islands EEZ and in surrounding international waters; however most abundance and distribution data comes from within the EEZ. The best available abundance estimate for the Hawaiian stock is 469 animals, but there are insufficient data to determine the population trend. Bryde's whales are not listed under the ESA nor depleted under the MMPA.

Cuvier's Beaked Whale

Cuvier's beaked whales are found in temperate, subtropical, and tropical waters around the world. Of all the beaked whale species, they likely have the most extensive range and distribution. Cuvier's beaked whales prefer deep, pelagic waters and are often associated with

steep underwater bathymetry. They are typically seen alone or in groups of two to 12 animals, but are considered shy and tend to avoid vessels. Cuvier's beaked whales within the Pacific U.S. EEZ are divided into three discrete areas: Hawaiian waters, Alaskan waters, and waters off California, Oregon, and Washington. The Hawaiian stock includes animals found both within the Hawaiian Islands EEZ and in surrounding international waters; however most abundance and distribution data comes from within the EEZ. The best available abundance estimate for the Hawaiian stock is 15,242 animals, but there are insufficient data to determine the population trend. Cuvier's beaked whales are not listed under the ESA nor depleted under the MMPA.

Dwarf Sperm Whale

Dwarf sperm whales are found in tropical, subtropical, and temperate waters worldwide. They are most common along the continental shelf edge and slope and considered the sixth most commonly seen toothed whale around the Hawaiian Islands. They are typically seen alone or in groups of six to 10 animals, but are considered quite timid. Dwarf sperm whales within the Pacific U.S. EEZ are divided into two discrete areas: Hawaiian waters and waters off California, Oregon, and Washington. The Hawaiian stock includes animals found both within the Hawaiian Islands EEZ and in surrounding international waters; however most abundance and distribution data comes from within the EEZ. The best available abundance estimate for the Hawaiian stock is 17,519 animals, but there are insufficient data to determine the population trend. Dwarf sperm whales are not listed under the ESA nor depleted under the MMPA.

False Killer Whale

False killer whales are found in tropical and temperate oceans worldwide. In the U.S., their distribution ranges from Hawaii, along the entire West Coast, and from the mid-Atlantic

coastal states south. They prefer deep waters of at least 1,000 m and are typically found in groups of 10-20 animals. Two stocks exist within Hawaiian Islands EEZ and adjacent international waters with overlapping ranges: the insular stock and the pelagic stock. False killer whales within HSWAC's proposed project area would be part of the insular stock. The best available abundance estimate for Hawaii insular stock is 123 animals. Sighting data from 1994-2003 suggest a statistically significant decline. False killer whales are not currently listed under the ESA nor depleted under the MMPA. However, in 2010, NMFS proposed to list the Hawaii insular stock as endangered under the ESA. A final listing decision has not been made.

Humpback Whale

Humpback whales live in all major oceans from the equator to the sub-polar latitudes. These large, baleen whales rely on warmer waters for calving, but feed on krill, plankton, and small fish in cold, productive coastal waters. In the North Pacific, there are at least three separate humpback populations: the California/Oregon/Washington stock, the Central North Pacific stock, and the Western North Pacific stock. Any humpbacks around the Hawaiian Islands are part of the Central North Pacific stock, which winters in the Hawaiian Islands and migrates to waters off Canada and Alaska each spring. The Hawaiian Islands Humpback Whale National Marine Sanctuary was established in 1992 to protect humpback whales and their habitat off the shores of Maui, Kauai, Oahu, Molokai, and the Big Island. Point estimates of abundance for Hawaii from recent SPLASH data range from 7,469 to 10,103. The estimate of humpback whales from the best model was 10,103, but no associated CV has been calculated. The minimum population estimate for the central North Pacific humpback whale stock is 5,833. Data from multiple studies suggest that the current population trend for the central North Pacific stock

is increasing (Mobley et al., 2001; Mizroch et al., 2004; Calambokidis et al., 2008). Humpback whales are considered endangered under the ESA and depleted under the MMPA.

Longman's Beaked Whale

Longman's beaked whales are found in warm, deep waters of tropical and subtropical regions of the Pacific and Indian Oceans. However, little is known about this species and they are considered one of the rarest whales. They are typically seen in groups of 10-20 animals, and sometimes in association with pilot whales, spinner dolphins, and bottlenose dolphins. There is one Pacific stock of Longman's beaked whales, found within waters of the Hawaiian Islands EEZ. The best available abundance estimate for the Hawaii stock is 1,007 animals and there are no data available on current population trend. Longman's beaked whales are not listed under the ESA nor depleted under the MMPA.

Melon-headed Whale

Melon-headed whales are found primarily in deep, tropical waters worldwide. They often travel in groups of hundreds to over 1,000 animals. There are three recognized stocks in the U.S.: Hawaii, Northern Gulf of Mexico, and Western North Atlantic. The best available abundance estimate for the Hawaii stock is 2,950 animals, but the current population trend is unknown due to lack of data. Melon-headed whales are not listed under the ESA nor depleted under the MMPA.

Minke Whale

Minke whales prefer temperate to boreal waters, but are also found in tropical and subtropical areas. They are the smallest baleen whale in North American waters and there are at least two recognized species: northern or common minke whale and Antarctic minke whale.

Minke whales are often active at the surface and found in both coastal and offshore waters individually or in small groups of 2-3. For management purposes, minke whales in U.S. waters are divided into four stocks: Alaska, Canadian Eastern Coastal, California/Oregon/Washington, and Hawaii. Any minke whales in the proposed action area would be part of the Hawaii stock and would only be present during winter months. There is currently no abundance estimate for this stock of minke whales and no data are available on the current population trend. Minke whales are not listed under the ESA nor depleted under the MMPA.

Short-finned Pilot Whale

Short-finned pilot whales are found in tropical and temperate waters worldwide. They can be found closer to shore, but typically prefer deeper waters of at least 305 m. Short-finned pilot whales are often traveling and foraging in groups of 25-50 animals. For stock assessment purposes, short-finned pilot whales within the Pacific U.S. EEZ are divided into two discrete areas: Hawaii and waters off California, Oregon, and Washington. The best available abundance estimate for the Hawaii stock is 8,846 animals, but the current population trend is unknown due to lack of data. Short-finned pilot whales are not listed under the ESA nor depleted under the MMPA.

Pygmy Killer Whale

Pygmy killer whales are found primarily in tropical and subtropical waters worldwide. They prefer deep waters where their prey is concentrated and usually occur in groups of 50 or less. Pygmy killer whales are relatively rare around Hawaii, but have been sighted around numerous islands. Three U.S. stocks exist for this species: Hawaii, Western North Atlantic, and Northern Gulf of Mexico. The best available abundance estimate for the Hawaii stock is 956

animals and there are no data available on current population trend. Pygmy killer whales are not listed under the ESA nor depleted under the MMPA.

Pygmy Sperm Whale

Pygmy sperm whales are found in tropical, subtropical, and temperate waters worldwide. They are most common along the continental shelf edge and slope. Pygmy sperm whales are often seen alone or in groups of 6-7 animals, but are considered quite timid. For management purposes, this species has been divided into four stocks within U.S. waters: Hawaii, California/Oregon/Washington, Northern Gulf of Mexico, and the Western North Atlantic stock. The best available abundance estimate for the Hawaii stock is 7,138 animals and there is no data available on current population trend. Pygmy sperm whales are not listed under the ESA nor depleted under the MMPA.

Bottlenose Dolphin

Bottlenose dolphins are found in temperate and tropical waters worldwide. Some populations migrate into bays, estuaries, and rivers, while others inhabit pelagic waters near the continental shelf. Bottlenose dolphins are often seen in groups of two to 15 animals, but offshore herds sometimes reach several hundred. There are 11 stocks of bottlenose dolphins in U.S waters, and animals within HSWAC's proposed project area would be part of the Hawaiian Islands stock complex. Recent data suggests that there may be distinct resident populations of bottlenose dolphins at each of the four main Hawaiian Island groups – Kauai and Niihau, Oahu, the Four-Islands region, and Hawaii. Limited surveys have been done for the Oahu stock and there is no precise population estimate for this area. Group sizes of bottlenose sightings around Oahu range from three to 24. The best available abundance estimate for the Hawaiian pelagic

stock (between the 1,000 m isobaths and the EEZ boundary) is 3,178 animals. Population trends for all U.S. stocks are currently unknown. Bottlenose dolphins are not listed under the ESA and only the Western North Atlantic coastal stock is depleted under the MMPA.

Fraser's Dolphin

Fraser's dolphins are found in warm temperate, subtropical, and tropical waters worldwide. They usually occur in deep waters associated with areas of upwelling. Fraser's dolphins are usually found in tight groups averaging 10-100 animals and may be seen in mixed schools with false killer whales, melon-headed whales, Risso's dolphins, and short-finned pilot whales. For stock assessment purposes, there is a single Pacific management stock including animals found within the Hawaiian Islands EEZ and in surrounding international waters. The best available abundance estimate for this stock is 10,266 animals. There are no data available on current population trend. Fraser's dolphins are not listed under the ESA nor depleted under the MMPA.

Risso's Dolphin

Risso's dolphins are found in temperate, subtropical, and tropical waters worldwide that are generally deeper than 1,000 m. Their group size averages 10-30 animals, but they are also seen alone, in pairs, and in much larger aggregations. There are two stocks within the Pacific U.S. EEZ: Hawaii and waters off California, Oregon, and Washington. The best available abundance estimate for the Hawaii stock is 2,372 animals and no data are available on current population trend. Risso's dolphins are not listed under the ESA nor depleted under the MMPA.

Rough-toothed Dolphin

Rough-toothed dolphins prefer deeper areas of tropical and warm temperate waters worldwide. This species usually occurs in tight groups of 10-20 animals and is often associated with short-finned pilot whales, bottlenose dolphins, pantropical spotted dolphins, and spinner dolphins. There are two Pacific management stocks of rough-toothed dolphins: Hawaii and American Samoa. The best available abundance estimate for the Hawaii stock is 8,709 animals, but there are no data available on current population trend. Rough-toothed dolphins are not listed under the ESA nor depleted under the MMPA.

Spinner Dolphin

Spinner dolphins are found in all tropical and subtropical oceans. They are most common in deep ocean waters, but the Hawaii population has a more coastal distribution. Around Hawaii, spinner dolphins often rest in bays and protected areas during the day and feed offshore at night. Spinner dolphins groups can reach up to several thousand animals and they often school with other dolphin species. Spinner dolphins living around Hawaiian Islands are part of the Hawaii stock complex, which is divided into six stocks: Hawaii Island, Oahu/Four-Islands, Kauai/Niihau, Pearl and Hermes Reef, Kure/Midway, and Hawaii pelagic. No data on current population sizes for any of the Hawaiian Island stocks are available. In 2002, a vessel survey estimated an abundance of 3,351 animals for the entire Hawaii stock complex. Spinner dolphins around Oahu typically remain within 8 km from shore and the average group size is 24 animals. There are no data available on the current population trend. Spinner dolphins are not listed under the ESA and only the eastern stock in the Eastern Tropical Pacific Ocean is depleted under the MMPA.

Pantropical Spotted Dolphin

Pantropical spotted dolphins are found in tropical and subtropical waters worldwide. Similar to the Hawaii stock complex of spinner dolphins, spotted dolphins spend the day in relatively shallow water and move offshore at night to search for prey. They often occur in groups of several hundred to 1,000 animals and school with other dolphin species. Pantropical spotted dolphins are common and abundant throughout the Hawaiian Islands. The best available abundance estimate for pantropical spotted dolphins within the Hawaiian Islands EEZ is 8,978 animals. No data are available on current population trend. Pantropical spotted dolphins are not listed under the ESA and only the Pacific Northeastern offshore stock is depleted under the MMPA.

Hawaiian Monk Seal

Monk seals live in warm subtropical waters and spend most of their time at sea. They prefer waters surrounding atolls, islands, and areas farther offshore on reefs and submerged banks. When on land, monk seals breed and haul out on sandy beaches and volcanic rock. The majority of monk seals live in six main breeding subpopulations in the Northwestern Hawaiian Islands. The best estimate of the total Hawaiian monk seal population is 1,161 animals. The total number of individually identifiable seals in the Main Hawaiian Islands (based on sightings in 2008) is 113. The Main Hawaiian Islands monk seal population appears to be increasing by about 5.6 percent per year. Hawaiian monk seals are listed as endangered under the ESA and depleted under the MMPA.

Potential Effects of the Specified Activity on Marine Mammals

Elevated in-water sound levels from pile driving in the proposed project area may temporarily impact marine mammal behavior. (Elevated in-air sound levels are not a concern

because the distance to the Level B harassment threshold for in-air sound (100 dB) does not reach the nearest monk seal haul out at Magic Island in Waikiki.) Marine mammals are continually exposed to many sources of sound. For example, lightning, rain, sub-sea earthquakes, and animals are natural sound sources throughout the marine environment. Marine mammals produce sounds in various contexts and use sound for various biological functions including: (1) social interactions; (2) foraging; (3) orientation; and (4) predator detection. Interference with producing or receiving these sounds may result in adverse impacts. Audible distance or received levels depend on the sound source, ambient noise, and the sensitivity of the receptor (Richardson et al., 1995). Marine mammal reactions to sound may depend on sound frequency, ambient sound, what the animal is doing, and the animal's distance from the sound source (Southall et al., 2007).

Cetaceans are divided into three functional hearing groups: low-frequency, mid-frequency, and high-frequency. Bryde's whale, humpback whale, and minke whale are considered low-frequency cetaceans and the estimated auditory bandwidth (lower to upper frequency cut-off) ranges from 7 Hertz (Hz) to 22 kilohertz (kHz). Blainville's beaked whale, Cuvier's beaked whale, false killer whale, Longman's beaked whale, melon-headed whale, short-finned pilot whale, pygmy killer whale, and all dolphin species are considered mid-frequency cetaceans and their estimated auditory bandwidth ranges from 150 Hz to 160 kHz. Dwarf sperm whale and pygmy sperm whale are considered high-frequency cetaceans and their estimated auditory bandwidth ranges from 200 Hz to 180 kHz (Southall et al., 2007).

Pinnipeds produce a wide range of social signals, most occurring at relatively low frequencies (Southall et al., 2007), suggesting that hearing is keenest at these frequencies.

Pinnipeds communicate acoustically both on land and underwater, but have different hearing capabilities dependent upon the medium (air or water). Based on numerous studies, as summarized in Southall et al. (2007), pinnipeds are more sensitive to a broader range of sound frequencies underwater than in air. Underwater, pinnipeds can hear frequencies from 75 Hz to 75 kHz. In air, pinnipeds can hear frequencies from 75 Hz to 30 kHz (Southall et al., 2007). However, based on underwater audiograms for a single animal, the in-water hearing range of Hawaiian monk seals may be narrower than other pinnipeds. Thomas et al., (1990) showed that one Hawaiian monk seal's in-water hearing ranged from 2 kHz to 48 kHz with the most sensitivity between 12 kHz and 28 kHz.

Hearing Impairment

Marine mammals may experience temporary or permanent hearing impairment when exposed to loud sounds. Hearing impairment is classified by temporary threshold shift (TTS) and permanent threshold shift (PTS). There are no empirical data for when PTS first occurs in marine mammals; therefore, it must be estimated from when TTS first occurs and from the rate of TTS growth with increasing exposure levels. PTS is likely if the animal's hearing threshold is reduced by $\geq$ 40 dB of TTS. PTS is considered auditory injury (Southall et al., 2007) and occurs in a specific frequency range and amount. Irreparable damage to the inner or outer cochlear hair cells may cause PTS; however, other mechanisms are also involved, such as exceeding the elastic limits of certain tissues and membranes in the middle and inner ears and resultant changes in the chemical composition of the inner ear fluids (Southall et al., 2007). Due to proposed mitigation measures and source levels in the proposed project area, NMFS does not expect marine mammals to be exposed to PTS levels.

To avoid the potential for injury, NMFS (1995, 2000) concluded that cetaceans should not be exposed to pulsed underwater noise at received levels exceeding 180 dB re: 1 μPa. The 180-dB re: 1 μPa (rms) criterion is the received level which NMFS first applied before additional TTS measurements for marine mammals became available, when one could not be certain that there would be no injurious effects, auditory or otherwise, to marine mammals at higher sound levels. The 180-dB level is often used to establish a shutdown zone to protect cetaceans from potential for injury. NMFS also assumes that cetaceans exposed to levels exceeding 160 dB re: 1 μPa (rms) may experience Level B harassment.

Temporary Threshold Shift (TTS)

TTS is the mildest form of hearing impairment that can occur during exposure to a loud sound (Kryter, 1985). While experiencing TTS, the hearing threshold rises and a sound must be louder in order to be heard. TTS can last from minutes or hours to days, occurs in specific frequency ranges (i.e., an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kHz), and can occur to varying degrees (e.g., an animal's hearing sensitivity might be reduced by 6 dB or by 30 dB). For sound exposures at or somewhat above the TTS-onset threshold, hearing sensitivity recovers rapidly after exposure to the sound ends.

Few data on sound levels and durations necessary to elicit mild TTS have been obtained for marine mammals. Southall et al. (2007) considers a 6 dB TTS (i.e., baseline thresholds are elevated by 6 dB) sufficient to be recognized as an unequivocal deviation and thus a sufficient definition of TTS-onset. Because it is non-injurious, NMFS considers TTS as Level B harassment that is mediated by physiological effects on the auditory system; however, NMFS does not consider onset TTS to be the lowest level at which Level B harassment may occur.

Researchers have derived TTS information for odontocetes (toothed whales) from studies on the bottlenose dolphin and beluga. For the one harbor porpoise tested, the received level of airgun sound that elicited onset of TTS was lower (Lucke et al., 2009). If these results from a single animal are representative, it is inappropriate to assume that onset of TTS occurs at similar received levels in all odontocetes (cf. Southall et al., 2007). Some cetaceans apparently can incur TTS at considerably lower sound exposures than are necessary to elicit TTS in the beluga or bottlenose dolphin.

For baleen whales, there are no data, direct or indirect, on levels or properties of sound that are required to induce TTS. The frequencies to which baleen whales are most sensitive are assumed to be lower than those to which odontocetes are most sensitive, and natural background noise levels at those low frequencies tend to be higher. As a result, auditory thresholds of baleen whales within their frequency band of best hearing are believed to be higher (less sensitive) than are those of odontocetes at their best frequencies (Clark and Ellison, 2004). From this, it is suspected that received levels causing TTS onset may also be higher in baleen whales (Southall et al., 2007).

For pinnipeds, sound exposures that elicit TTS underwater have been measured in harbor seals, California sea lions, and northern elephant seals. Exposures to nonpulse sound over different periods of time showed a difference in TTS-onset between species (Kastak et al., 2005). Data suggest that harbor seals experience TTS-onset at a lower sound exposure level than other pinnipeds. Only one study has been done on underwater TTS-onset in pinnipeds exposed to pulse sounds. Finneran et al. (2003) showed no measureable TTS in two California sea lions following exposures to a transducer.

Marine mammal hearing plays a critical role in communication with conspecifics and in interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (i.e., recovery time), and frequency range of TTS and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious. For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during a time when communication is critical for successful mother/calf interactions could have more serious impacts if it were in the same frequency band as the necessary vocalizations and of a severity that it impeded communication. The fact that animals exposed to levels and durations of sound that would be expected to result in this physiological response would also be expected to have behavioral responses of a comparatively more severe or sustained nature is also notable and potentially of more importance than the simple existence of a TTS. For HSWAC's proposed project, NMFS expects cases of TTS to be improbable given: (1) the limited amount of pile driving over a 1-year period; (2) the motility of free-ranging marine mammals in the water column; and (3) the propensity for marine mammals to avoid obtrusive sounds.

Behavioral Effects

Behavioral disturbance includes a variety of effects, including subtle to conspicuous changes in behavior, movement, and displacement. Marine mammal reactions to sound, if any, depend on species, state of maturity, experience, current activity, reproductive state, time of day,

and many other factors (Richardson et al., 1995; Wartzok et al., 2004; Southall et al., 2007; Weilgart, 2007). If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (e.g., Lusseau and Bejder, 2007; Weilgart, 2007). Given the many uncertainties in predicting the quantity and types of impacts of noise on marine mammals, it is common practice to estimate how many mammals would be present within a particular proximity to activities and/or exposed to a particular level of sound. In most cases, this approach likely overestimates the numbers of marine mammals that would be affected in some biologically-important manner.

Continuous Sound

Southall et al. (2007) summarizes numerous behavioral observations made of low-frequency cetaceans to a range of nonpulse sound sources, such as vibratory pile driving. Generally, the data suggest no or limited responses to received levels of 90-120 dB (rms) and an increasing probability of behavioral effects in the 120-160 dB (rms) range. However, differences in source proximity, novelty of the sound, operational features, etc. seem to be at least as important as exposure level when predicting behavioral response. Southall et al. (2007) also summarizes numerous mid-frequency cetaceans have also been observed responding to nonpulse sounds such as pingers, vessel noise, sonar, and playbacks of drilling sounds. Again, contextual variables seem to play a large role in behavioral response. In some studies, animals responded with high severity scores while others did not respond even at higher exposure levels. There are

also notable differences in results from field versus laboratory conditions. While multiple controlled studies of high-frequency cetaceans to nonpulse sound have been conducted, only one species (harbor porpoise) has been extensively studied. The data suggest that harbor porpoises may be sensitive to lower received levels than some other taxa. Wild harbor porpoises avoided all recorded exposures above 140 dB (rms), but it is unknown whether this type of behavioral response translates to other high-frequency cetaceans (Southall et al., 2007).

There are limited data available on the behavioral effects of continuous sound (e.g., vibratory pile driving) on pinnipeds while underwater; however, field and captive studies to date collectively suggest that pinnipeds do not react strongly to exposures between 90 and 140 dB re: 1 microPa; no data exist from exposures at higher levels. Jacobs and Terhune (2002) observed wild harbor seal reactions to high-frequency acoustic harassment devices around nine sites. Seals came within 44 m of the active acoustic harassment devices and failed to demonstrate any behavioral response when received SPLs were estimated at 120-130 dB. In a captive study (Kastelein, 2006), scientists subjected a group of seals to non-pulse sounds between 8 and 16 kHz. Exposures between 80 and 107 dB did not induce strong behavioral responses; however, a single observation from 100 to 110 dB indicated an avoidance response. The seals returned to baseline conditions shortly following exposure. Southall et al. (2007) notes contextual differences between these two studies; the captive animals were not reinforced with food for remaining in the noise fields, whereas free-ranging animals may have been more tolerant of exposures because of motivation to return to a safe location or approach enclosures holding prey items.

Impulse Sounds

Southall et al. (2007) addresses behavioral responses of marine mammals to impulse sounds (like impact pile driving). The studies that address the responses of mid-frequency cetaceans to impulse sounds include data gathered both in the field and the laboratory and related to several different sound sources, including: small explosives, airgun arrays, pulse sequences, and natural and artificial pulses. The data show no clear indication of increasing probability and severity of response with increasing received level. Behavioral responses seem to vary depending on species and stimuli. Data on behavioral responses of high-frequency cetaceans to multiple pulses are not available.

The studies that address the responses of pinnipeds in water to impulse sounds include data gathered in the field and related to several different sources, including: small explosives, impact pile driving, and airgun arrays. Quantitative data on reactions of pinnipeds to impulse sounds are limited, but a general finding is that exposures in the 150 to 180 dB range generally have limited potential to induce avoidance behavior (Southall et al., 2007).

Anticipated Effects on Habitat

No permanent detrimental impacts to marine mammal habitat are expected to result from the proposed project. Pile driving (resulting in temporary ensonification) may impact prey species and marine mammals by resulting in avoidance or abandonment of the area and increased turbidity; however these impacts are expected to be localized and temporary. The receiving pit would be backfilled after construction and while the intake and discharge pipes would take up a limited amount of space on the seafloor, there are no expected adverse impacts to marine mammal habitat. The pipelines would actually create additional benthic habitat for coral recruitment and growth of fish communities by increasing surface area. The discharge pipe

would return slightly cooler, nutrient-rich water to the ocean. However, the discharge water would be within one degree of ambient seawater temperature and is not expected to affect marine mammal habitat.

Proposed Mitigation

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses. HSWAC proposed the following mitigation measures to minimize adverse impacts to marine mammals:

Temporal Restrictions

Based on NMFS' recommendation, HSWAC would not conduct any vibratory pile driving from December 1 through March 31. This is the peak humpback whale season for Hawaii and there is a possibility that humpback whales may occur within the proposed HSWAC project site. HSWAC agreed to restrict vibratory pile driving because elevated sound levels (120 dB or higher) from this activity could extend out 4,700 m from the source and monitoring such a large area in order to prevent Level B harassment is not feasible.

HSWAC may still conduct impact pile driving during the humpback whale season (with an additional mitigation measure). The distance to the Level B harassment zone for impact pile driving is much smaller (1,000 m) and HSWAC would monitor this area and stop pile driving in order to prevent Level B harassment of humpback whales (see next section). Further temporal

restrictions are not practicable for HSWAC because pile driving cannot be conducted during summer months due to swells on the south shore of Oahu.

Establishment of an Exclusion Zone

The purpose of HSWAC's proposed exclusion zone is to prevent Level A harassment (injury) of any marine mammal species and Level B harassment of humpback whales. During all in-water impact pile driving, HSWAC would establish a radius around each pile driving site that would be continuously monitored for marine mammals. If a marine mammal is observed nearing or entering this perimeter, HSWAC would stop pile driving operations to prevent marine mammals from being exposed to sounds at or above 180 dB. More specifically, HSWAC would monitor a 91-m distance around each pile driving site. This area would encompass the estimated 180-dB isopleth of 47 m, within which injury could occur, plus an additional 44-m buffer. The exclusion zone would be monitored 30 minutes before and during all impact pile driving to ensure that no marine mammals enter the 91-m radius. One protected species observer would be located on the pile driver barge to perform monitoring.

Based on NMFS' recommendation, HSWAC would extend the exclusion zone to 1,000 m for all large whales from December 1 through March 31. The purpose would be to prevent Level B harassment of humpback whales during Hawaii's peak humpback whale season.

Once in-situ underwater sound measurements are taken, the exclusion zone may be adjusted accordingly so that marine mammals are not exposed to Level A harassment sound pressure levels. An exclusion zone does not need to be established during vibratory pile driving because source levels would not exceed the Level A harassment threshold.

Pile Driving Shut Down and Delay Procedures

If a protected species observer sees a marine mammal approaching or entering the 91-m exclusion zone (or a large whale approaching or entering the 1,000-m exclusion zone from December 1 through March 31) prior to start of impact pile driving, the observer would notify the on-site project lead (or other authorized individual) who would then be required to delay pile driving until the marine mammal has moved away or if the animal has not been resighted within NMFS' recommended 15 minutes for pinnipeds or 60 minutes for cetaceans. If a marine mammal is sighted entering or on a path toward the 91-m exclusion zone (or a large whale approaching or entering the 1,000-m exclusion zone from December 1 through March 31) during pile driving, pile driving would cease until that animal is on a path away from the exclusion zone or NMFS' recommended 15/60 minutes has lapsed since the last sighting.

Soft-start Procedures

A 'soft-start' technique is intended to allow marine mammals to vacate the area before the pile driver reaches full power. HSWAC would implement this technique by initiating pile driving at an energy level of about 40-60 percent. This level would be maintained for at least 5 minutes before gradually increasing the energy to full power. Soft-start procedures would be conducted prior to driving each pile if hammering ceases for more than 15 minutes.

Proposed Monitoring and Reporting

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking". The MMPA implementing regulations at 50 CFR 216.104 (a)(13) indicate that requests for IHAs must include the suggested means of accomplishing the necessary monitoring and reporting that

will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present.

HSWAC would perform in-situ underwater sound monitoring during sheet pile and test pile driving operations to verify source levels and ensure that the harassment isopleths are not extending past the calculated distances described in this notice. If necessary, the 91-m exclusion zone would be expanded to include sound levels reaching 180 dB.

In addition to monitoring the 91-m exclusion zone, HSWAC would designate an observer to monitor the 160-dB zone around the sound source during all pipe pile driving (impact pile driving) operations. This observer would also be stationed on the pile driving rig and would be responsible for monitoring from the 91-m exclusion zone out to the Level B harassment zone at 1,000 m. The purpose of this observer would be to: (1) conduct behavioral monitoring of marine mammals and record any Level B takes of marine mammals that occur during pipe pile driving operations; and (2) notify the onsite project lead (or other authorized individual) if a large whale is seen approaching or entering the 1,000-m exclusion zone from December 1 through March 31.

During at least 5 of the 16 days of sheet (i.e., vibratory) pile driving operations, HSWAC would designate two additional observers to monitor the 120-dB zone around the sound source. These observers would be stationed on a small power boat with an operator and would travel in a semi-circular route about 3.1 km from the sound source in order to observe and record any marine mammals that could be exposed to sound levels between 120-180 dB. Maximum travel speed would be 10 nautical miles per hour. Monitoring would begin 40 minutes prior to the start of sheet pile driving operations in order to observe whether any marine mammals in the area

remained once pile driving operations started. Monitoring would continue during sheet pile driving operations and the observer would record all marine mammal sightings and behavior. At a minimum, monitoring of the 120-dB zone would occur on the first and second day of pile driving operations, followed by the fifth day, the tenth day, and fifteenth day. Observer data from the 120-180 dB area (for both pipe and sheet pile driving) would be used to validate take estimates and evaluate the behavioral impacts that pile driving has on marine mammals.

Protected species observers would be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, spotting scopes, compass, and range-finder) in order to determine if animals have entered into the exclusion zone or Level B harassment isopleth and to record species, behaviors, and responses to pile driving. If in-situ underwater sound monitoring indicates that threshold isopleths are greater than originally calculated, HSWAC would contact NMFS within 48 hours and make the necessary adjustments. Protected species observers would be required to submit a report to NMFS within 90 days of completion of pile driving. The report would include data from marine mammal sightings (such as species, group size, and behavior), any observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as an injury (Level A harassment), serious injury, or mortality (e.g., ship-strike or gear interaction), HSWAC would immediately cease the specified activities and report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Michael.Payne@noaa.gov and Michelle.Magliocca@noaa.gov and the Pacific Islands Regional

Stranding Coordinator at 808-944-2269 (David.Schofield@noaa.gov). The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities would not resume until NMFS is able to review the circumstances of the prohibited take. NMFS would work with HSWAC to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. HSWAC would not resume their activities until notified by NMFS via letter, email, or telephone.

In the event that HSWAC discovers an injured or dead marine mammal, and the lead observer determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph),

HSWAC would immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Michael.Payne@noaa.gov and Michelle.Magliocca@noaa.gov and the Pacific Islands Regional Stranding Coordinator at 808-973-2941 (David.Schofield@noaa.gov). The report would include the same information identified in the paragraph above. Activities could continue while NMFS reviews the circumstances of the incident. NMFS would work with HSWAC to determine whether modifications in the activities are appropriate.

In the event that HSWAC discovers an injured or dead marine mammal, and the lead observer determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), HSWAC would report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Michael.Payne@noaa.gov and Michelle.Magliocca@noaa.gov and the Pacific Islands Regional Stranding Coordinator at 808-944-2269 (David.Schofield@noaa.gov), within 24 hours of the discovery. HSWAC would provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS.

Estimated Take by Incidental Harassment

Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption

of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Based on the application and subsequent analysis, the impact of the described pile driving operations (taking into account proposed mitigation and monitoring measures) may result in, at most, short-term modification of behavior by small numbers of marine mammals. Marine mammals may avoid the area or temporarily change their behavior at time of exposure.

Current NMFS practice regarding exposure of marine mammals to anthropogenic noise is that in order to avoid the potential for injury (PTS), cetaceans and pinnipeds should not be exposed to impulsive sounds of 180 and 190 dB or above, respectively. This level is considered precautionary as it is likely that more intense sounds would be required before injury would actually occur (Southall et al., 2007). Potential for behavioral harassment (Level B) is considered to have occurred when marine mammals are exposed to sounds at or above 160 dB for impulse sound (such as impact pile driving) and 120 dB for continuous sound (such as vibratory pile driving). Table 2 summarized the distances to NMFS' harassment thresholds from each type of pile driving activity. Based on this information, and considering the proposed mitigation measures, marine mammals would not likely be exposed to sound levels reaching 180 dB (Level A harassment) or higher.

HSWAC initially requested marine mammal takes for all species that could potentially be around Hawaii at any point during the year. However, as noted in the Description of Marine Mammals in the Area of the Specified Activity section of this document, some species only occur during winter months or are considered rare around Hawaii. Based on further consultation with the NMFS Pacific Islands Region and Pacific Islands Fisheries Science Center, NMFS is

proposing to authorize the amount of take detailed in Table 4. These numbers are based on species density around Hawaii, taking habitat preference, seasonality, average group size, and number of pile driving days into consideration.

Where applicable, the density of each species was applied to the largest Level B harassment isopleth (4,700 m) and multiplied by the maximum number of pile driving days. For example, the density estimate for dwarf sperm whales is 0.31 animals within the 120 dB isopleth. This number was rounded to one and multiplied by the number of total pile driving days (72). For some species, only vibratory pile driving duration (16 days) was used to calculate take due to the following: (1) the Level B harassment zone for impact pile driving is relatively small (1,000 m); (2) impact pile driving would occur in relatively shallow water; and (3) some species prefer deep water and are unlikely to occur within the 1,000-m radius. Beaked whales were lumped together due to the difficulty in identifying them to the species level. Although vibratory pile driving would be prohibited from December through March, there is still a possibility of some large whales (humpbacks and minkes) being in the area during November or April. Therefore, based on the number of pile driving days, NMFS estimated that 16 humpbacks and 16 minke whales may be exposed to Level B harassment from vibratory pile driving during this time. The proposed take numbers in Table 4 are conservative in that they indicate the maximum number of animals expected to occur within the largest Level B harassment isopleth (4,700 m).

Table 4. Proposed takes for marine mammals during pile driving operations.

Species	Density within the Project Area	Expected Take from Vibratory Pile Driving (density x number of pile driving days)	Expected Take from Impact Pile Driving (density x number of pile driving days)	Proposed Take
Beaked whales (Blainville's,	0.08	16	0	16

Cuvier's, Longman's)				
Bryde's whale	0.01	16	0	16
Dwarf sperm whale	0.31	16	56	72
False killer whale	0.05	16	0	16
Humpback whale	n/a	16	0	16
Melon-headed whale	0.10	16	0	16
Minke whale	n/a	16	0	16
Short-finned pilot whale	0.65	16	56	72
Pygmy killer whale	0.02	16	0	16
Pygmy sperm whale	0.13	16	0	16
Bottlenose dolphin	n/a	-	-	216[1]
Fraser's dolphin	0.02	16	0	16
Risso's dolphin	0.11	16	0	16
Rough-toothed dolphin	0.35	16	0	16
Spinner dolphin	n/a	-	-	384[2]
Pantropical spotted dolphin	0.87	16	0	16
Monk seal	n/a	-	-	128[3]

[1]There is no density estimate for bottlenose dolphins around Hawaii, so the minimum group size (3) was multiplied by the total number of pile driving days (72).

[2]There is no density estimate for spinner dolphins around Hawaii, so the average group size (24) was multiplied by the number of vibratory pile driving days (16). Spinner dolphins are seen more frequently than bottlenose dolphins, but are unlikely to occur within the Level B harassment zone during impact pile driving due to their preference for deeper waters.

[3]A maximum of four different monk seals have been seen hauled out around the south shore of Oahu, with one or two hauled out at any given time. NMFS Pacific Islands Fisheries Science Center estimates the population by multiplying beach counts by three. Therefore, we assume that 12 monk seals may reside around the south shore of Oahu with about four of them hauled out at any given time and others offshore traveling or foraging. The estimate of monk seals that may be in the water (8) was multiplied by the number of vibratory pile driving days (16). Impact pile driving was discounted because of the relatively small harassment zone and limited hours of activity (15-60 minutes/day).

Negligible Impact and Small Numbers Analysis and Determination

NMFS has defined "negligible impact" in 50 CFR 216.103 as "...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." In making a negligible impact determination, NMFS considers a number of factors which include, but are not limited to, number of anticipated injuries or mortalities (none of which

would be authorized here), number, nature, intensity, and duration of Level B harassment, and the context in which takes occur.

As described above, marine mammals would not be exposed to activities or sound levels which would result in injury (PTS), serious injury, or mortality. Rather, NMFS expects that some marine mammals may be exposed to elevated sound levels which would result in Level B behavioral harassment. No impacts to marine mammal reproduction are expected because the closest known monk seal haul out is outside of the Level B harassment zone for in-air sound and proposed mitigation and monitoring measures would prevent harassment of humpback whales during the peak humpback whale season. During winter months, humpback whales migrate to Hawaii. Some level of socializing, breeding, and/or calving is thought to take place along the south of Oahu. The highest estimates of humpback whale surface density occur around Maui, Molokai, and Lanai; however, there are estimated areas of high humpback whale surface density around the other islands and humpbacks may be present around Oahu's south shore during winter months (Mobley et al., 2001). While the Hawaiian Islands Humpback Whale National Marine Sanctuary includes part of Oahu's south shore, NMFS does not expect sound levels at or above 120 dB from pile driving to reach the sanctuary boundary. Otherwise, the proposed project area is not considered significant habitat for marine mammals.

Proposed mitigation and monitoring measures are expected to prevent impacts to cetacean reproduction. Marine mammals may avoid the area around the hammer, thereby reducing their exposure to elevated sound levels. NMFS expects any impacts to marine mammal behavior to be temporary, Level B harassment (e.g., avoidance or alteration of behavior). HSWAC expects that a maximum of 72 pile driving days may occur over a 1-year period.

Marine mammal injury or mortality is not likely, as the 180-dB isopleth (NMFS' Level A harassment threshold for cetaceans) for the impact hammer is expected to be no more than 47 m from the sound source. The 190 dB isopleth (NMFS' Level A harassment threshold for pinnipeds) would be even smaller. Considering HSWAC's proposed mitigation measures, NMFS expects any changes to marine mammal behavior from pile driving noise to be temporary. The amount of take NMFS proposes to authorize is considered small (less than 12 percent of each species) relative to the estimated population sizes detailed in Table 3 (less than 12 percent for two species and less than seven percent for all others). There is no anticipated effect on annual rates of recruitment or survival of affected marine mammals.

Based on the analysis of the likely effects of pile driving on marine mammals and their habitat, and considering the proposed mitigation and monitoring measures, NMFS preliminarily determines that HSWAC's proposed pile driving activities would result in the incidental take of small numbers of marine mammals, by Level B harassment only, and that the total taking from will have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action.

Endangered Species Act (ESA)

The humpback whale and Hawaiian monk seal are the only marine mammals listed as endangered under the ESA with confirmed or possible occurrence in the proposed project area during pile driving. Currently, no critical habitat has been designated for either species on or around Oahu. However, in June 2011, NMFS proposed revising the Hawaiian monk seal critical habitat by extending the current area around the Northwestern Hawaiian Islands and designating

six new areas in the main Hawaiian Islands. This would include terrestrial and marine habitat from 5 m inland from the shoreline extending seaward to the 500-m depth contour around Oahu. The Hawaii insular stock of false killer whales is also currently proposed for listing under the ESA. Under section 7 of the ESA, the U.S. Army Corps of Engineers (as the federal permitting agency for HSWAC's proposed project) has begun consultation with NMFS Pacific Islands Region on the proposed seawater air conditioning project. NMFS is also consulting internally on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. Consultation will be concluded prior to a determination on the issuance of an IHA.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500-1508), and NOAA Administrative Order 216-6, NMFS is preparing an Environmental Assessment (EA) to consider the direct, indirect, and cumulative effects to marine mammals and other applicable environmental resources resulting from issuance of a 1-year IHA and the potential issuance of future authorizations for incidental harassment for the ongoing project. Upon completion, this EA will be available on the NMFS website listed in the

beginning of this document (see ADDRESSES). The U.S. Army Corps of Engineers also prepared an Environmental Impact Statement (EIS) to consider the environmental effects from the seawater air conditioning project.

Dated: July 18, 2012.

_____

Wanda Cain,
Acting Director,
Office of Protected Resources,
National Marine Fisheries Service.

[FR Doc. 2012-18087 Filed 07/23/2012 at 8:45 am; Publication Date: 07/24/2012]